

appears on the screen 20 at the display window aperture 10 is adjustable by means of a potentiometer element 48 in the circuit of timer 46. The frequency of change is selected so that the period or time duration of the interval during which each still image appears on the screen is of sufficient duration to avoid or preclude any objectionable or distracting motion effects on viewers outside the building. This is particularly important where the display window aperture is visible to, and viewed by, motorists. At the very least, the time period or interval of display is of sufficient duration to avoid any flickering effect. For example, the time period of display for each projection image is not less than 10 to 15 seconds for a frequency of 4 to 5 per minute and preferably the period is at least several minutes.

In the foregoing example of a slide projector is used and the advertising message or other communication or visual display is enlarged through projection to fill the display window aperture. Alternatively, an opaque projector or overhead projector may be used for projecting other types of images through the display window image projection system. A feature and advantage of this image projection system is that the effect of an illuminated billboard after dark may be achieved in the aperture of a display window or picture window of a building. More importantly, the system of the present invention provides the capability of periodically changing the signboard or billboard scale display. The disadvantages inherent in traditional billboards, including weather deterioration and the expense of reposting or papering, are avoided. The present invention also contemplates additional variations. For example, the illuminating lamp and intensity of illumination of the image display may be varied according to conditions and the subject matter of the display. The system may also be provided with a manual override for control of the advertising message or communication under display.

At the end of a viewing period, typically during evening or nighttime hours, the clock synchronized timer 40 turns off the projector lamp of the slide projector 16 allowing the cooling blower to continue for the prescribed bulb cool-down period. After the cool-down period, the blower of slide projector 16 is also turned off. At the same time the, first timer 40 activates the reversible electric motor 42 for a period of time sufficient to withdraw, retract and rewind the screen 20 into the storage roll 44. The display window 20 is therefore ready to function as a display window during the next period of daylight hours. The slide tray or cartridge 18, or other set or cartridge of images to be projected, may be changed easily for conveying new advertising information or other communications.

For operation of the screen 20 and screen motor 42, the screen is coupled to the screen motor 42 by a pair of belts 50 in the configuration of endless loops. The endless loop belts 50 are supported at the screen roll end by a pair of pulleys 54 on a shaft 56. The screen 20 may be rolled directly on the shaft 56 during storage. The shaft may also be housed within a canister for protecting the rolled screen during storage.

The endless loop belts 50 are supported at the other ends by the pair of pulleys 60 on rotating shaft 62. The shafts 56 and 62 are spaced apart on either side of the display window 10. The screen 20 is secured to the pair of belt loops 50 by a batten 64 extending across the leading edge or end of screen 20. The ends of the batteries secured to the belt loops 50. The trailing edge or end of the screen 20 is secured to the shaft 56. Because the

screen drive motor 42 drives the belt loops 50 directly, the pulleys 54 and 60 and shafts 56 and 62 are driven in synchronism. During deployment, the screen 20 is drawn by the belt loops 50 and batten 64 across, and adjacent to, the display window on the inside. During retraction, the shaft 56 rewinds the screen withdrawing the batten 64 back across.

The invention contemplates a number of other variations and combinations including a rear projection screen of the "Venetian blind" type construction with a plurality of separately pivotal parallel mounted slats which may be rotated or pivoted by an electric drive motor to orient the slats in a common plane or co-planar configuration for deployment as a screen. Subsequently, the slats may be rotated to a mutually parallel configuration in which each slat is perpendicular to the plane of the display window aperture to minimize obstructing or obscuring the display window. According to another variation and embodiment, a vertical pull-down screen may be used with the roller oriented horizontally across the top or above the display window.

In addition to the back reflecting plane mirror, other optical elements and arrangements may also be used for folding or controlling the optical path of the projected image so that the focal plane of the projection system lies substantially at the display window aperture and screen deployed across the display window.

While the invention has been described with reference to particular example embodiments, it is intended to cover all modifications and equivalents within the scope of the following claims.

I claim:

1. A new billboard scale outdoor advertising medium comprising:

a display window of a building, said display window defining the display aperture of a projection system for viewing projected images from outside the building;

a deployable and retractable rear projection screen having a size area sufficient for substantially covering the display window display aperture, said screen being positioned for deployment in the display aperture adjacent to the display window of a building inside the and for retraction from the display aperture away from the display window so that the display window is unobstructed when the screen is retracted;

screen motor means positioned inside the building and operatively coupled to the deployable and retractable screen for deployment of the screen in the display aperture adjacent to the display window and for retraction from the display aperture;

first timer means operatively coupled to the screen motor means, said first timer means being adjusted and arranged for generating a first timing signal to actuate the screen motor means for deployment of the screen at a selected first time of the day and for generating a second timing signal to actuate the screen motor means for retraction of the screen at a selection second time of the day, whereby the display window functions as the display aperture of a projection system for viewing images from outside the building during a first time period of the day and whereby the display window functions as a building display window during a second time period of the day;

image projector means operatively positioned inside the building for projecting still images along an